

	 CERTIFICATE 2518.08																								
MOTOROLA PENANG ADV. COMM. LABORATORY Motorola Solutions Malaysia Sdn Bhd Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas Penang, MALAYSIA	FCC / ISED TEST REPORT Report Revision : Rev.C																								
<table><tr><td>Date/s Tested</td><td>: 19-Aug-2023 - 19-Aug-2023</td></tr><tr><td>Manufacturer/Location</td><td>: Motorola Solutions Malaysia Sdn Bhd</td></tr><tr><td>Manufacturer Address</td><td>: Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia</td></tr><tr><td>Requestor</td><td>: SZE KEAT NG</td></tr><tr><td>Product Type</td><td>: Portable</td></tr><tr><td>Model Number</td><td>: T803</td></tr><tr><td>Frequency Band</td><td>: 161.650-162.550MHz</td></tr><tr><td>Firmware Version</td><td>: NA004</td></tr><tr><td>Applicant Name</td><td>: Motorola Solutions Inc</td></tr><tr><td>Applicant Address</td><td>: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322.</td></tr><tr><td>ISED Registrations</td><td>: MY0001</td></tr><tr><td>FCC Registrations</td><td>: 461337</td></tr></table> The equipment was tested accordance to the requirement listed below: (LMR) FCC 47 CFR Part 15B / RSS Gen / ICES-003 PASS		Date/s Tested	: 19-Aug-2023 - 19-Aug-2023	Manufacturer/Location	: Motorola Solutions Malaysia Sdn Bhd	Manufacturer Address	: Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia	Requestor	: SZE KEAT NG	Product Type	: Portable	Model Number	: T803	Frequency Band	: 161.650-162.550MHz	Firmware Version	: NA004	Applicant Name	: Motorola Solutions Inc	Applicant Address	: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322.	ISED Registrations	: MY0001	FCC Registrations	: 461337
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Prepared By:  Mohd Helmy Shamsuddin Technician	Approve Signatory:  Tan Kien Hua Responsible Engineer																								

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REVISION HISTORY

Revision History	Description	Date	Originator
A	Initial Report	24-Aug-23	Mohd Helmy Shamsuddin
B	i) Updated Measurement Uncertainty Table ii) Update firmware version from NA 004 to NA004	29-Sep-23	Mohd Helmy Shamsuddin
C	i) Add in battery voltage description and test mode description in Receiver Test Conditions table. ii) Remove radiated spur emission setup photo and EUT photograph.	4-Oct-23	Mohd Helmy Shamsuddin

1.0. General Information

EUT Description:

Technologies	LMR, BT LE, BT
Modulation Type	FM, GFSK, $\pi/4$ -DQPSK or 8-DPSK

The EUT was tested with following device/accessory:

Item	Brand	Model or P/N
1300MAH 3XAA NIMH RECHARGEABLE BATTERY PACK	MOTOROLA	1532

General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, the EUT is to comply with the requirements of the following standards:

ANSI C63.26.2015

ANSI C63.4.2014

2.0. Summary of Test Results

FCC General Rules Part (47CFR)	IC General Rules Part	Test Item	Result
15.111	RSS-Gen 7.4	Conducted Spurious Output Power	NA
15.109	ICES-003 6.1, RSS-Gen	Radiated Spurious Output Power	Pass
15.107	ICES-003 6.2, RSS-Gen	AC Power Conducted Spurious Emissions	NA

NA → Not Applicable

3.0. Measurement Uncertainty

Measurement	Frequency	Expended Uncertainty (k=1.96) (±)
AC Power Line Conducted Spurious Emission	150KHz ~ 30MHz	3.48
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	5.88
	200MHz ~ 1000MHz	5.88
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.84
	18GHz ~ 40GHz	6.02
Conducted Spurious Emissions	9kHz ~ 12.75GHz	2.82

4.0. Equipment List

CONDUCTED SPUR EMISSION ATE # 1 NA

Radiated Emission Station

Description	Model #	Serial Number	Calibration Date	Calibration Due Date
EMI TEST RECEIVER	ESIB26	100017	09-Nov-22	08-Nov-23
3M SEMI-ANECHOIC CHAMBER	NA	888032	No Cal. Req'd	No Cal. Req'd
TURNTABLE FLUSH MOUNT 2M	T-200-S	N/A	No Cal. Req'd	No Cal. Req'd
PROGRAMMING CONTROLLER	MF-7802BS	N/A	No Cal. Req'd	No Cal. Req'd
POWER SUPPLY (0-60V/0-50A, 1000W)	6032A	2615A01178	18-Jun-23	18-Jun-24
SIGNAL ANALYZER	FSV40	101432	10-Aug-23	09-Aug-24
DATA LOGGER	SDL500	A.016800	21-Jun-23	21-Jun-24
BILOG ANTENNA	CBL6112D	55546	23-Jun-22	23-Sep-23
BILOG ANTENNA	CBL6112D	30991	5-Jan-23	5-Jan-24
DRG HORN FREQ.	SAS-571	566	22-Nov-22	22-Nov-23
DRG HORN FREQ.	SAS-571	720	18-Apr-23	18-Apr-25
PREAMPLIFIER	PAM-0118	427	18-Oct-21	18-Oct-24
SIGNAL GENERATOR	SMB100A	182511	04-Jun-21	04-Jun-24
LOOP ANTENNA	6502	00208416	12-Oct-22	12-Oct-23
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170255	22-Feb-23	22-Feb-24
Test Software	EMC_FCC_IC_Bluetooth_RE_Test			
Version	EMC_FCC_RE_v1.6.5			

AC Power Line Conducted Spurious Emission NA

5.0. Test Condition

5.1 Receiver Test Conditions

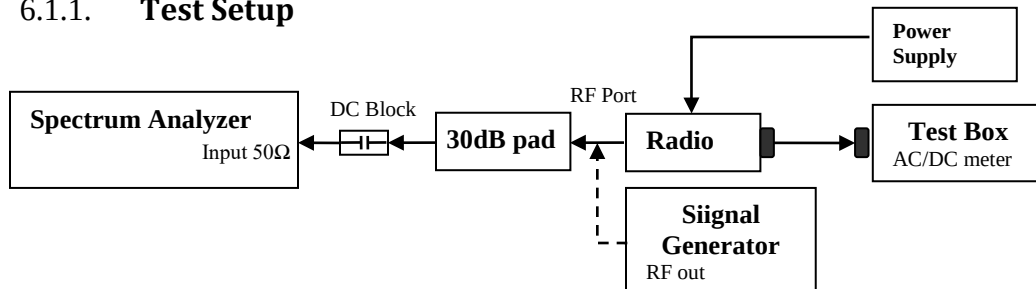
Test Item, (Channel Spacing)	Temperature (°C)	Voltage Supply (V)	Power (W)	Modulation	Highest Operating Frequency (MHz)	Test Mode Description
Conducted Spurious Output Power (12.5kHz / 25kHz)	NA	NA	NA	NA	NA	
Radiated Spurious Output Power (12.5kHz)	23.5°C	Battery powered with 3.6 V.	NA	FM	162.0000	Weather channel turned on.
AC Power Line Conducted Spurious Emissions (12.5kHz / 25kHz)	NA	NA	NA	NA	NA	

NA → Not Applicable

6.0. Receiver Test Parameters

6.1. Conducted Spurious Output Power

6.1.1. Test Setup



- 1) Identify the radio is high side ($LO = F_c + IF$) or low side injection ($LO = F_c - IF$).
- 2) To get the reference point, set sigen to 1st LO frequency with amplitude level 0dBm.
- 3) Set the LO frequency into PSA. Adjust the PSA RBW = 100 kHz and record the Reference level offset.
- 4) Replace the Sigen with the UUT.
- 5) At PSA, set the frequency step size to LO frequency to test from 2LO to 10LO.
- 6) Record or screen captures the data in dBm value.

6.1.2. Test Result

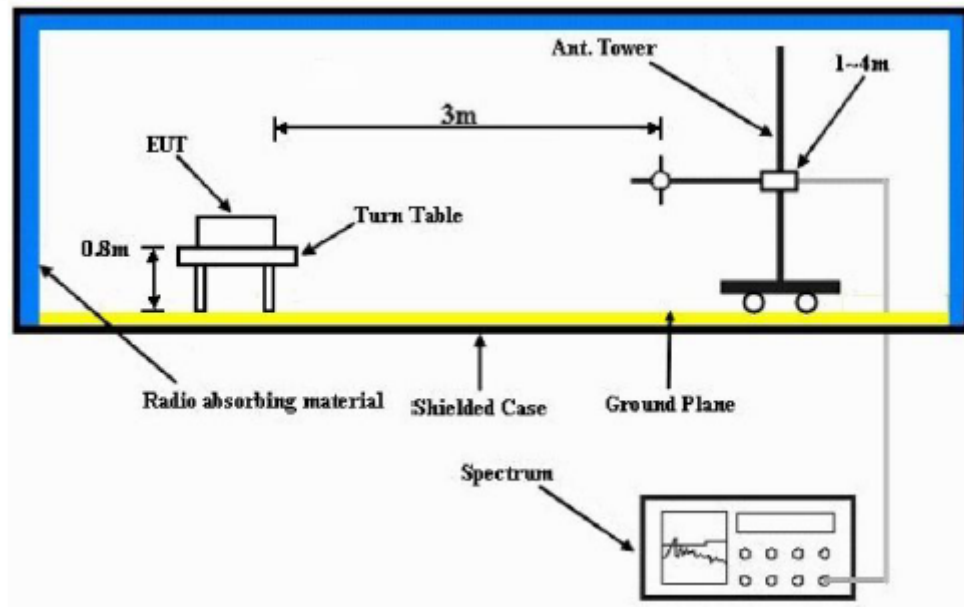
NA

6.1.3. Test Limit

No spurious output appearing at the antenna terminals shall exceed -57dBm across 50Ω.

6.2. Radiated Spurious Output Power

6.2.1. Test Setup



- 1) The spectrum setting for scanning Radiated Emission below 1 GHz is RBW = 100 kHz, VBW = 300 kHz and above 1 GHz is RBW = 1MHz, VBW = 3MHz. Detector mode is positive peak.
- 2) In the semi-anechoic chamber, setup as illustrated above the EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- 3) The substitution antenna is substituted for EUT at the same position and signals generator (S.G) export the CW signal to the substitution antenna via a TX cable. The receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum radiation power. Record the power level of maximum radiation power from spectrum. So, the measured substitution value = Ref level of S.G + TX cables loss – Substituted Antenna Gain.
- 4) Final Radiated Spurious Emission = "Read Value" + Measured substitution value.

FCC ID: AZ489FT7174, IC: 109U-89FT7174

Test: SAC Receiver Radiated Emission
Model#: T803 **S/N: 17520ZN0371** **EMC SR ID#: 39731-EMC-00006**
Battery: 1532 **Accessory: NA**
Test Frequency: 162.0000 MHz **Test Standard: ANSI C63.26-2015**

Radiated Emission tabular data

[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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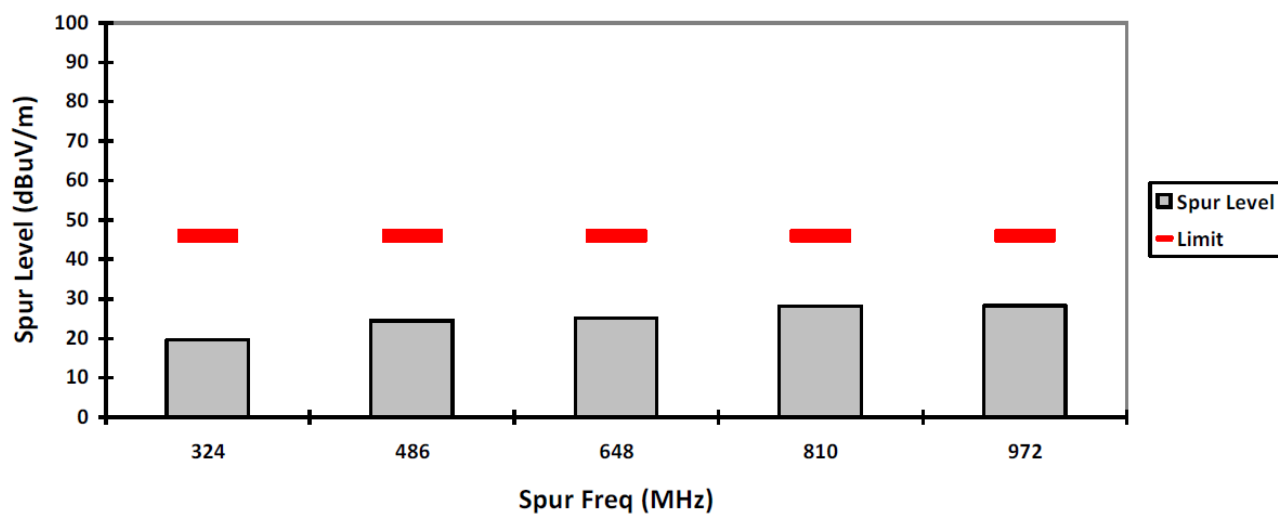
Temperature (degC): 23.5 Humidity (%): 56.7
Test Performed by: Haniff (Zhariff) Test Date: Fri, 18 Aug, 2023
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

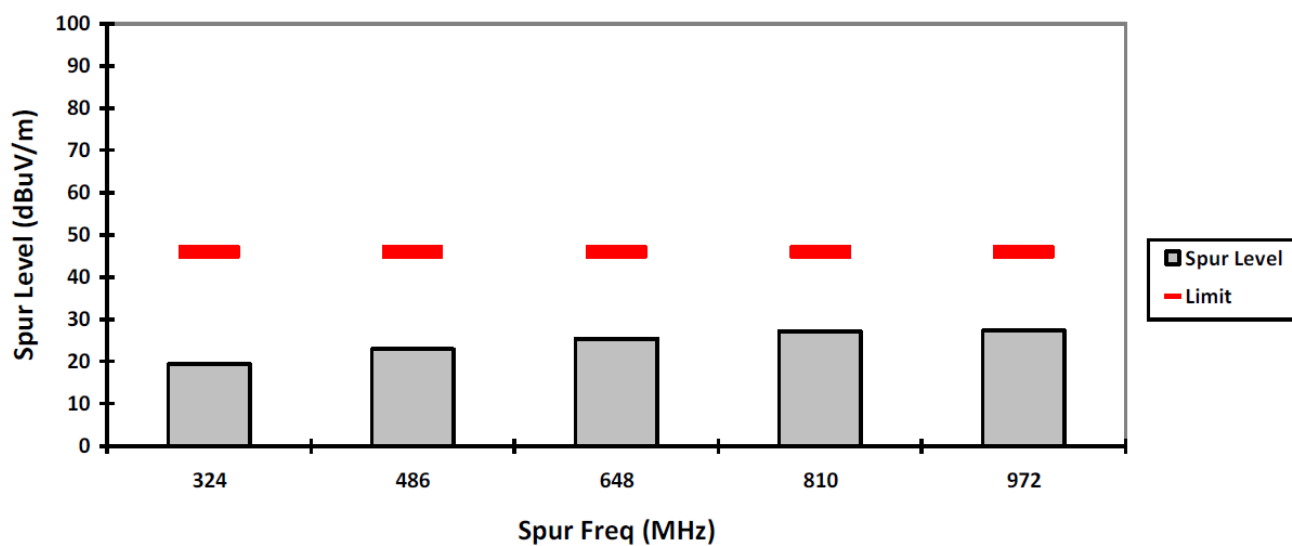
Motorola Solutions.

FCC ID: AZ489FT7174, IC: 109U-89FT7174

VERTICAL, QPK



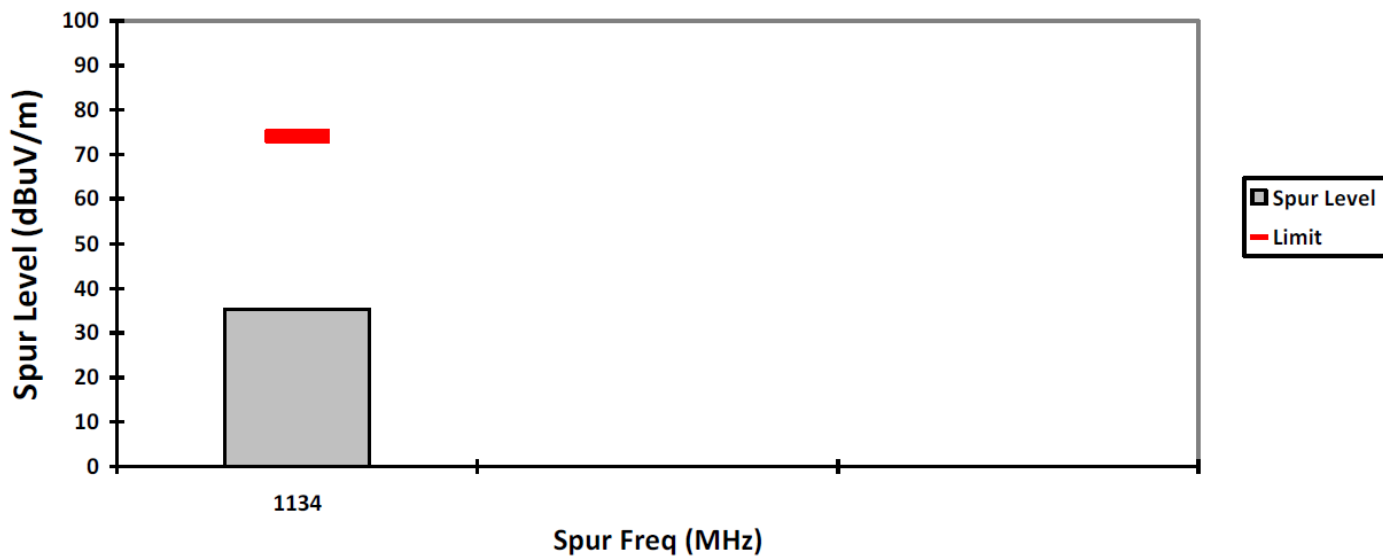
HORIZONTAL, QPK



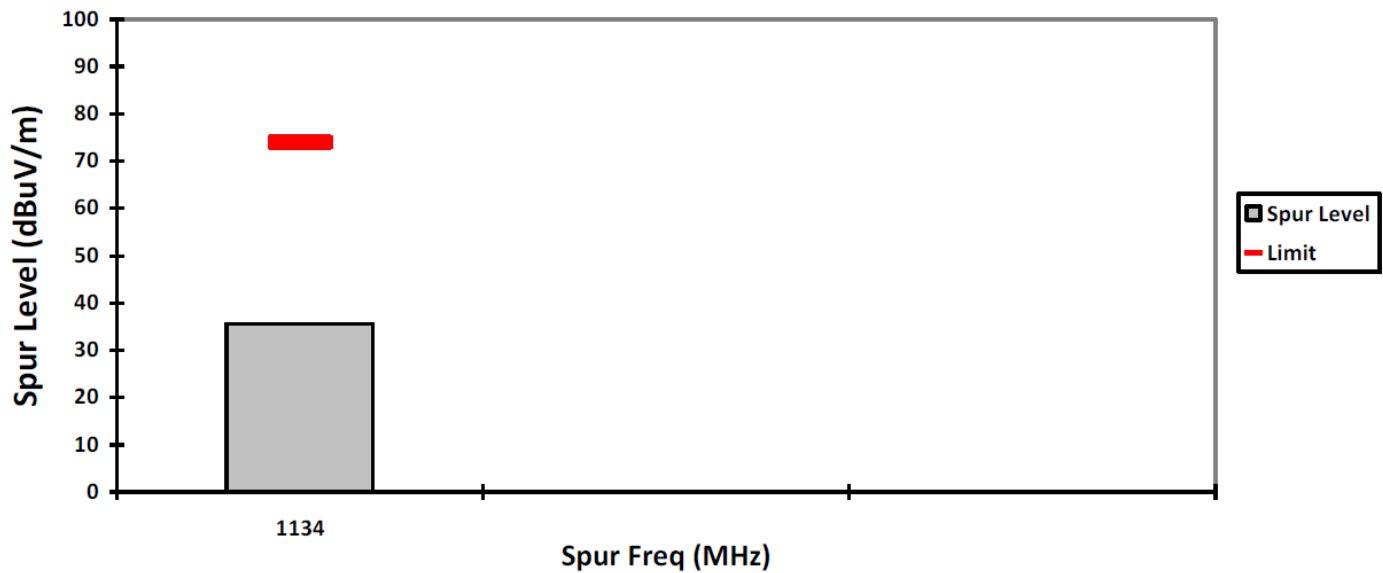
Motorola Solutions.

FCC ID: AZ489FT7174, IC: 109U-89FT7174

VERTICAL, PK



HORIZONTAL, PK



6.2.3. Test Limit

(a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

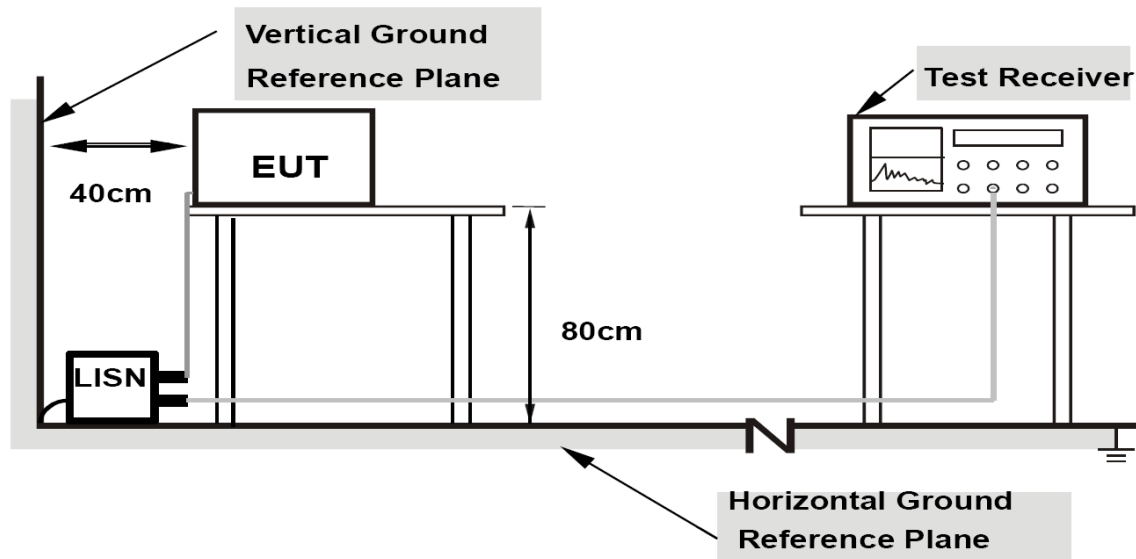
Frequency of emission (MHz)	Field strength (microvolts/meter)
30-88	100
88-216	150
216-960	200
Above 960	500

(b) The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the following:

Frequency of emission (MHz)	Field strength (microvolts/meter)
30-88	90
88-216	150
216-960	210
Above 960	300

6.3. AC Power Line Conducted Spur Emissions

6.3.1. Test Setup



- 1) Tests were conducted for both Receive and Transmit Mode of the EUT.
- 2) The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50uH of coupling impedance for the measuring instrument.
- 3) Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- 4) The frequency range from 150 kHz to 30MHz was measured.

6.3.2. Test Results

NA

6.3.3. Test Limits

For AC Power Line Conducted Test Limit can be Class A or B depends on product classification.

**Limits for conducted disturbance at the mains ports
of class A ITE**

Frequency range MHz	Limits dB(μ V)	
	Quasi-peak	Average
0,15 to 0,50	79	66
0,50 to 30	73	60
NOTE The lower limit shall apply at the transition frequency.		

**Limits for conducted disturbance at the mains ports
of class B ITE**

Frequency range MHz	Limits dB(μ V)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50
NOTE 1 The lower limit shall apply at the transition frequencies.		
NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

7.0. Appendix: Test Setup Photo

7.1. Conducted Spur Emission ATE Station Setup

NA

7.2. Radiated Spur Emission Station Setup

NA

7.3. AC Power Line Conducted Emission Station Setup

NA

7.4. Photographs – EUT

NA

~ End of Test Report ~